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GRAZING PREFERENCES OF HORSES FOR DIFFERENT COOL-SEASON GRASSES

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Cool-season grasses are the predominant plants used in central Kentucky horse pastures. Within a species there may be varieties that differ in agronomic characteristics. Previous studies at the University of Kentucky have evaluated the tolerance of cool-season grass varieties to intense grazing by horses (Spitileri et al., 2004). This study was conducted to determine whether horses demonstrate preferences for certain cool-season grasses. Cool-season grasses in the study included timothy (two varieties), orchardgrass (one variety), Kentucky bluegrass (two varieties), bromegrass (one variety), and tall fescue or tall fescue-cross (nine varieties).

Fifteen varieties of cool-season grasses were seeded in a 0.5-acre paddock in fall of 2003. The fifteen varieties were distributed among 90 individual plots (1.5 m x 4.6 m each) so that each variety was seeded into six plots in the paddock. In the spring of 2004, plots were scored for plant density and mean forage height was measured before horses were allowed to graze in the paddock. These observations were repeated 2 d, 5 d, 7 d, and 14 d after the horses were given access to the paddock. In addition, plots were scored for grazing intensity 2 d, 5 d, 7 d, and 14 d after the horses were given access to the paddock. On each day, observations were made in the following order: grazing intensity, plant density, and forage height. Observers completed all scores for grazing intensity before scoring the plots for plant density, and all plant density scores were completed before forage height was measured. Ratings were made by four trained observers; however, each plot was rated by only two individuals. Two observers rated plots 1-45 and the other two observers rated plots 46-90. Each observer worked independently. The two independent observations were averaged for each plot to yield one grazing intensity score, one plant density score, and one forage height measurement per plot. The average of the six plots for each variety was then determined for grazing intensity, plant density, and forage height for each measurement day. Measurements were made during the spring growing season (mid-May) when plants were in a vegetative state. All observations were made between 8 a.m. and 10 a.m.

Plant density was scored from 0 to 10, where 0 was a plot with none of the seeded variety present, and 10 was a plot with complete coverage by the seeded variety. Intermediate scores represented the percentage of the plot that was covered so that a score of 5 indicated a plot with 50% coverage. Grazing activity was also scored from

0 to 10, where 0 was a plot with no grazing activity and a 10 was a plot where 100% of the plants had been grazed. Intermediate scores represented a percentage of the plants in the plot that had been grazed so that 5 represented a plot where 50% of the plants had been grazed. Each observer measured forage height at five locations across a diagonal of each plot. For each plot, the one observer measured across the right to left diagonal and the other observer measured across the left to right diagonal. The five measurements made by each observer were averaged to produce one measurement per observer per plot.

Prior to being given access to the test paddock, four horses were kept in a holding pasture that was adjacent to the test paddock for 2 wk. Once the pre-grazing observations were made, the gate between the test pasture and the holding pasture was opened. Horses were able to enter the test paddock area at will and were not confined in the test paddock at any time. Water was available in the adjacent pasture.

Initial height of forage available for grazing in the test paddock was higher ($P < 0.05$) for the tall fescue/fescue-cross varieties than for the non-fescue varieties (34.6 +/- 1.8 cm vs 32.0 +/- 2.2 cm, respectively, mean +/- SE). The difference in initial height could be attributed to the two bluegrass varieties that had an average initial height of 28.0 +/- 2.2 cm. By day 2, forage height was reduced for some varieties. The greatest mean reduction in forage height on day 2 was observed for a variety of timothy (9.3 +/- 1.0). The mean reduction in forage height was not different for tall fescue/fescue-cross varieties compared to non-fescue varieties on day 2. By day 5, however, the mean reduction in forage height for non-fescue varieties was greater ($P<0.05$) than for tall fescue/fescue-cross varieties (10.6 +/- 2.9 cm vs 6.9 +/- 2.0 cm, respectively). This difference persisted through 14 d with forage height reductions of 17.8 +/- 2.5 cm for the non-tall fescue varieties and 12.5 +/- 2.4 cm for the tall fescue/fescue-cross varieties.

Initial plant density scores were 7 or above for all varieties, with scores above 8 for all tall fescue/fescue-cross varieties, the orchardgrass, and one timothy variety. Density scores decreased with grazing time, but at 2 wk, several tall fescue/fescue-cross varieties still had density scores above 8. By comparison, the bromegrass variety sustained the greatest change in density from an initial score of 7.4 to a 2 wk score of 4. In general, greater reductions in density were observed for the non-fescue varieties than for the tall fescue/fescue-cross varieties. As expected, grazing scores increased during the grazing period. On day 2, several varieties had minimal evidence of grazing (mean score < 1.0) but one variety had grazing scores above 5. Interestingly, the two varieties with the lowest grazing score on day 2 also had low reductions in forage height, and the variety with the greatest reduction in forage height had the highest grazing score. By 2 wk, grazing scores were above 6 for all varieties except for two tall fescue/fescue-cross varieties. The variety with the lowest grazing score at 2 wk was also the variety with the lowest reduction in forage height.

Observations in this study suggest that horses select among cool-season grass forages. The reasons horses select one grass over another are unknown but may relate

to forage chemical composition or forage morphology. Similarly, the impact of forage preferences of horses is unknown, but further research is needed to determine whether total intake of preferred varieties is greater than intake of less preferred varieties.

References

Spitaleri, R.F., M. Collins, L.M. Lawrence, G.D. Lacefield, T.D. Phillips, B. Coleman, and D. Powell. (2004). 2003 Cool-season Grass Grazing Variety Report: Tolerance to Horses. PR-496 UK Agricultural Experiment Station, University of Kentucky, Lexington.